

#3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
ATTORNEY DOCKET NO. 30003054-2

1c971 U.S. PTO  
10/075445  
02/15/02

Applicant: Marco Casassa MONT et al.  
Title: IMPROVEMENTS IN AND RELATING TO DIGITAL  
CERTIFICATES  
Appl. No.: Unassigned  
Filing Date: 02/15/2002  
Examiner: Unassigned  
Art Unit: Unassigned

CLAIM FOR CONVENTION PRIORITY

Commissioner for Patents  
Washington, D.C. 20231

Sir:

The benefit of the filing date of the following prior foreign application filed in the following foreign country is hereby requested, and the right of priority provided in 35 U.S.C. § 119 is hereby claimed.

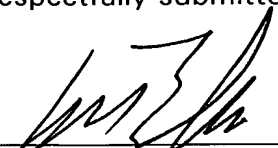
In support of this claim, filed herewith is a certified copy of said original foreign application:

Great Britain Application No. 0103970.0 filed February 17, 2001.

Respectfully submitted,

February 15 2002  
Date

HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, Colorado 80527-2400

  
\_\_\_\_\_  
William T. Ellis  
Registration No. 26,874

**THIS PAGE BLANK (USF**

**INVESTOR IN PEOPLE**

**CERTIFIED COPY OF  
PRIORITY DOCUMENT**

The Patent Office  
Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

jc971 U.S. PTO  
10/075445  
02/15/02

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

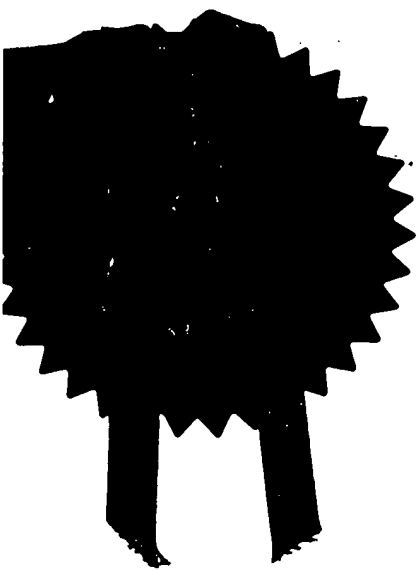
Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Signed

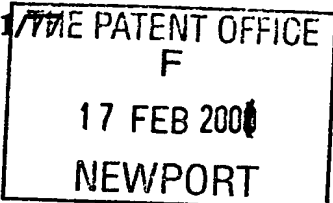
Mc

Dated

9 April 2001



**THIS PAGE BLANK (USPTO)**



19FEB01 E607059-1 D01463  
P01/7700 0.00-0103970.0

The Patent Office

Cardiff Road  
Newport  
South Wales  
NP10 8QQ

# Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

17 FEB 2001

1. Your reference	30003054 GB		
2. Patent application number (The Patent Office will fill in this part)	0103970.0		
3. Full name, address and postcode of the or of each applicant (underline all surnames)	Hewlett-Packard Company 3000 Hanover Street Palo Alto CA 94304, USA  Patents ADP number (if you know it) 00496588001 Delaware, USA  If the applicant is a corporate body, give the country/state of its incorporation		
4. Title of the invention	Improvements In and Relating To Trust for Digital Certificates		
5. Name of your agent (if you have one)  "Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)	Richard A. Lawrence Hewlett-Packard Ltd, IP Section Filton Road Stoke Gifford Bristol BS34 8QZ  Patents ADP number (if you know it) 07448038001		
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day / month / year)
7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application	Date of filing (day / month / year)	
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if: a) any applicant named in part 3 is not an inventor, or b) there is an inventor who is not named as an applicant, or c) any named applicant is a corporate body. See note (d))	Yes		

# Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description

14

Claim(s)

6

Abstract

1

Drawing(s)

2 + 2 82

10. If you are also filing any of the following, state how many against each item.

Priority documents

-

Translations of priority documents

-

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

1

Request for preliminary examination and search (Patents Form 9/77)

1

Request for substantive examination (Patents Form 10/77)

-

Any other documents (please specify)

Fee Sheet

11. I/We request the grant of a patent on the basis of this application.

Signature

Richard A. Lawrence

Date

16/02/2001

12. Name and daytime telephone number of person to contact in the United Kingdom

Meg Joyce

Tel: 0117-312-9068

## Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

## Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.
- Write your answers in capital letters using black ink or you may type them.
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.
- Once you have filled in the form you must remember to sign and date it.
- For details of the fee and ways to pay please contact the Patent Office.

# Improvements In and Relating to Trust For Digital Certificates

The present invention relates to digital certificates and  
5 to methods of communication.

A credential is a data structure provided to a bearer for  
a purpose, with some acknowledged way to verify the  
bearer's right to use the credential. A credential  
10 relates to an attribute, normally, but not necessarily, of  
the bearer. A credential is verified by a trusted source  
(sometimes referred to as the verifier). Often, there  
will be a chain of credentials and respective trusted  
sources until a verification is proffered by an  
15 organisation in which trust is implicit. Credentials are  
incorporated in a digital certificate for verification.

A digital certificate generally comprises a file  
containing information, which file is transmitted to a  
20 recipient together with a digitally signed version  
thereof. The digitally signed version is a hash of the  
file encrypted using a secret key (in a public key  
infrastructure). A hash is a one-way function that  
generates a substantially unique output from a file and is  
25 for all practical purposes irreversible. These concepts  
are familiar to those skilled in the art.

Digital certificates are used in communication using  
distributed electronic networks, such as the internet, to  
30 transmit a credential, typically of the bearer. A known  
digital certificate is the X.509 standard.

A certificate may contain one or more credential attributes.

5 A credential attribute in a certificate can be almost anything. Typical examples relevant to the present invention may be a credit rating, an access authorisation (for physical or electronic access), a verification of identity etc.

10 Each attribute has at least one attribute property, such as a value (e.g. a numeric or alphanumeric) or something more complex such as an indication of trust.

15 Generally, known digital certificates are valid for a fixed period of time (e.g. 1 year), during which time they will be used as a means of authentication and for gaining authorised access to services etc. This is referred to as the valid period. Such digital certificates can, however, be revoked at any time by the verifier (terminating the  
20 valid period), thus placing a burden on the certificate recipient to check revocation lists or to use online certificate status protocol services. These certificates are generally valid or not valid; there is no middle ground even though the degree of trust the trusted source  
25 has in the credential attribute may, in fact, vary over time (or some other variable) or if there is a wish to vary the credential attribute value.

A certificate may still be in a valid period even if a  
30 credential attribute within it is not.

By way of example, a certificate may specify an individual's credit limit as a credential attribute. In



this example, the credential attribute property value is the value of the credit limit. While this may be correct at the time of generation of the certificate, within the typical one year limit of the certificate, the verifier  
5 may not wish to attest to the same credit limit for the full period.

Even if the certification can be varied, the recipient may still need to assess the trustworthiness of the  
10 certificate or parts thereof. In particular, the recipient would wish to know what degree of trustworthiness the certificate issuer would give to the certificate or a part thereof. While it is known from US  
4 868 877 to associate a level of trust, in numerical  
15 form, to a credential or certificate, this does not address the problem of trust varying subsequent to issuance of the certificate or for other factors.

Preferred embodiments of the present invention aim to  
20 address the problems referred to above.

According to the present invention in a first aspect, there is provided a digital certificate comprising a plurality of credential attribute properties, and a trust  
25 function which trust function determines as a function of data available to it a trust value attributable to at least a part of the certificate.

In embodiments of the present invention the trust function  
30 uses data to generate a trust value the recipient can associate with one or more attributes in the certificate or with the certificate as a whole. Generally, but not exclusively, the trust function uses trust values of

attributes to generate what can be described as a composite or global trust value.

Suitably, the trust value is of a credential attribute in the certificate. Suitably, the trust value is of the certificate.

Suitably, the data is trust value data.

10 Suitably, the data includes data obtained externally of the certificate. Suitably, the obtained data is obtained from a user by the input of data in response to a query generated by the trust function. Suitably, the obtained data is obtained from a digital data store. Suitably, the digital data store is a web site.

Suitably, the trust function varies the trust value as a function of time.

20 Suitably, the trust function is configured to determine the trust value automatically. Suitably, the trust function is embedded within the certificate as an executable file. Suitably, execution of the executable file determines the trust value. Suitably, the executable file is a platform portable code, such as Java Script or HTML.

Suitably, the certificate had a valid period and the credential function determines the credential attribute property value during the valid period.

Suitably, the plurality of credential attribute properties are from a single credential attribute. Suitably, the

plurality of credential attribute properties are from a plurality of credential attributes.

5 Suitably, there is at least one attribute trust value, in which the trust function uses an attribute trust value to determine the trust value. Suitably, there is a plurality of credential attributes and a plurality of attribute trust values, in which the trust function uses a plurality of attribute trust values to determine the trust value.

10

Suitably, a credential function is provided in the certificate, which credential function is associated with at least one credential attribute property and which determines the value of the credential attribute property.

15

Suitably, the trust function uses the credential attribute property value determined by the credential function. Suitably, the credential attribute property value determined by the credential function is a trust value.

20

Suitably, the certificate has a valid period and, the trust function determines the trust value during the valid period of the certificate.

25 The "trust" value and the "property" value need not be numerical values, though generally they will be so. Numerical property values may relate to a numerical attribute, e.g. a credit rating, or be a numerical representation of a trust value in a particular credential attribute e.g. that of identity of the bearer. Typically,  
30 for a trust value, the value will be between a zero trust number (say '0' or '-1') and a full trust number (say '1') attributing a high confidence level to the credential.

The attribute function may be monotonically decreasing over time.

Other values may be alphanumeric e.g. "YES"/"NO" outputs or relate to preset word based indications such as "HIGH  
5 TRUST", "MEDIUM TRUST" or "LOW TRUST".

Suitably, the credential function varies the credential attribute property value as a function of time.

10 Suitably, the credential function is configured to determine the credential attribute property value automatically. Suitably, the credential function is embedded within the certificate as an executable file. Suitably, execution of the executable file determines the  
15 credential attribute property value. Suitably, the executable file is a platform portable code, such as Java Script or HTML.

Suitably, the credential attribute property comprises a  
20 value operated on by the credential function to determine a credential attribute property value.

Suitably, the credential function uses data obtained from outside the certificate to determine the credential  
25 attribute property value. Suitably, the obtained data is obtained from a user by the input of data in response to a query generated by the credential function. Suitably, the obtained data is obtained from a digital data store. Suitably, the digital data store is a web site.

30 Suitably, a plurality of the credential attribute properties have respective credential functions.

Suitably, each credential attribute property has a respective credential function.

5 By having the trust and, optionally, credential functions within the certificate it can be trusted by the recipient as a verified determination of the trust value of a part or all of the certificate and, optionally, credential attribute property value.

10 According to the present invention in a second aspect, there is provided a method of communication, which method comprises the steps of communicating from a sender to a recipient a digital certificate according to the first aspect of the invention.

15 Suitably, the recipient inspects the certificate and the trust value is determined by the trust function.

20 Suitably, the recipient inspects the certificate and the credential attribute property value is determined according to the credential function.

Suitably, the communication is via a distributed electronic network.

25 The present invention will now be described, by way of example only, with reference to the drawings that follow; in which:

30 Figure 1 is a schematic representation of a digital certificate according to a first embodiment of the present invention.

Figure 2 is a schematic representation of a distributed electronic network over which the present invention may be used.

- 5 Figure 3 is a schematic representation of a digital certificate according to a second embodiment of the present invention.

Referring to Figure 1 of the drawings that follow there is  
10 shown, schematically, a digital certificate 2 according to the X.509 standard, the certificate 2 containing credential attributes 4A-4N, which have credential attribute properties 6A-6X and a trust function 8. The certificate 2 is digitally signed (a hash created, which  
15 hash is encrypted using a verifier's secret key) as indicated schematically at 10. A source of external data is indicated schematically at 12.

The credential attribute 4A relates to a bearer's identity  
20 and contains an identity attribute property value 6A (eg "FRED SMITH"), an address attribute property value 6B and an indication of trustworthiness attribute property value 6C (a numerical value between -1 (completely untrustworthy) and +1 (completely trustworthy)).  
25 Credential attribute 4B is for and has a trustworthiness attribute property value 6D for the certificate as a whole. Credential attribute 4N relates to a credit limit, having a credit limit numerical attribute property value 6W and a trustworthiness attribute property value 6X (for  
30 credential attribute 4N).

The trust function 8 is embedded in the certificate 2 as an executable file of platform portable code such as JavaScript or HTML.

5 The certificate 2 is communicated via a distributed electronic network, such as the internet, as shown schematically in Figure 2 of the drawings that follow, in which a sender 16 communicates with a recipient 18 via the internet, indicated schematically at 20. Communication  
10 can be via other distributed electronic networks, such as Wide Area Networks (WANs) or Local Area Networks (LANs). Embodiments of the present invention can also be implemented in other, less preferred, ways, for instance by storing a certificate on a digital storage device (e.g.  
15 a floppy disk) and sending this to the recipient 18.

Upon receipt of the digital certificate 2, the recipient 18 inspects the digital signature 10 to verify the certificate 2. Having done so, the recipient 18 executes  
20 the trust function 6 which operates on some or all of the credential attribute properties 6A, 6B, 6C, 6D, 6W and 6X to determine and output a trust value for the certificate 2.

25 If external data is required, this is obtained from external data source 12.

By way of example, the certificate may be for a credit rating for a bearer of the certificate. The credit limit  
30 in the credential attribute property 6W may be, say, £10,000. Trust function 8 extracts the trust value credential attribute property values 6C, 6D, 6X and

averages these to produce a trust value 14 for the certificate.

This is a fairly simple example. Many variations exist, for instance, the trust function 8 need not be a simple average. It could weight one value more than another. Another option is that data is obtained from an external data source 12, for instance a date or a current account balance. The trust function need not use data from the certificate at all. Further, not just trust values need be used. For instance the trust value may be a function of time (generally trust will decrease over time).

Referring to Figure 3 of the drawings that follow, there is shown a schematic representation of a digital certificate 32 having a plurality of credential attributes 34A-34N with associated credential attribute properties 36A-36RM. The certificate 32 is signed, as indicated at 38. Digital certificate 32 corresponds to digital certificate 2 of Figure 1, except that in digital certificate 32 there is also a plurality of corresponding credential functions 40A-40M. A trust function is indicated at 42 and an external data source at 44.

In this example credential attribute 34A is a credit limit, having properties of a value 36A and an indication of trustworthiness 36B. Other properties 36C etc may be included. Credential attribute 34N is an identity having a value 36Q and an indication of trustworthiness 36R.

30

Each function 40A-40M is capable of modifying a respective credential attribute property 36A-36RM to determine a



respective credential attribute property value obtaining external data as required as indicated at 44.

5 The credential functions 40, in this case, may be a modifier of an existing credential attribute value. Pursuing the example of the credit rating, the function 40 may be to reduce the rating by 10% of the original rating for each month. Applying the function 40 to the attribute property 36 above, the function obtains date information and in the second month the credential attribute value 4 is determined as £9,000 and so on. Date information may be obtained from the recipient computer or, for more security, from a trusted source, preferably a trusted source web site. These are digital data sources.

15 Trust function 42 receives the generated credential attribute property values from credential functions 40A-40M and operate a trust value 46 output indicative of the trust in the certificate. External data may be obtained, as required, from external data source 44.

25 The credential function is embedded in the certificate as an executable file of platform portable code such as JavaScript or HTML.

30 In another example the credential attribute property 36 may be an access authorisation for a building to which the provider of the certificate 32 only wishes to allow the certificate bearer access on specified times, say week days only. The credential attribute property 36 would have a value of "PERMIT ACCESS" in this case. The credential function 40 is, therefore, encoded to determine the day of the week (for instance from a computer on which

the certificate 32 is being verified, or from a remote web-site) and generate a modified credential attribute property value which is "DO NOT PERMIT ACCESS" at week ends. It will be appreciated from this that the  
5 credential attribute property 36 will not always be modified by function 40.

Alternatively, the credential attribute property 36 may not have an original value in the certificate. Instead,  
10 it may solely be generated by a credential function which (generally) obtains data externally of the certificate.

There may be a one-to-one correlation between each credential attribute property 34A-36R and its  
15 corresponding credential function 40A-40M, though this need not be the case. For instance, one or more, but not necessarily all, of the credential attribute properties 36A-36R need have a credential function 40 for generation thereof. Further, a given credential function 40A-40M may  
20 be used for a plurality of credential attribute properties 36A-36R, in which case there may be fewer credential functions 40 than credential attribute properties 36.

In the certificates 2 and 32, it will be appreciated that  
25 many of the fields present in an X.509 certificate are not represented. These may include fields containing data to allow a credential attribute property value to be determined or evaluated according to the second credential function. For instance, these fields may include a  
30 credential start date.

The certificate 32 may provide the recipient with determined credential attribute property values relevant

to one or more attributes therein as well as to the trust function 42.

The trust and credential functions can seek information  
5 from elsewhere on which to base its generation of the  
credential attribute property value. For instance, the  
functions can access local time data or extract data from  
a web-site as required, as described above.  
Alternatively, in a less preferred option, data can be  
10 sought from the recipient of the certificate in response  
to an enquiry generated by the credential attribute  
function. This option is less preferred as it makes the  
certificate less self-contained. In some embodiment all  
data for the credential attribute property value from  
15 external of the certificate.

In less preferred embodiments the credential and trust  
functions can be non-automated. For instance, the  
credential functions could be a written statement that an  
20 attribute property is to decrease by a certain amount per  
time unit. The trust function could be an instruction to  
weight certain numerical values and average and/or to use  
alphanumeric values. However, it is preferred that the  
functions be automated so that a modified credential  
25 attribute property is generated automatically.

The digital certificate may, optionally, be encrypted.

The reader's attention is directed to all papers and  
30 documents which are filed concurrently with or previous to  
this specification in connection with this application and  
which are open to public inspection with this

specification, and the contents of all such papers and documents are incorporated herein by reference.

5 All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

10

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated  
15 otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

20 The invention is not restricted to the details of the foregoing embodiment(s). The invention extend to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so  
25 disclosed.

**Claims**

1. A digital certificate comprising a plurality of credential attribute properties, and a trust function which trust function determines as a function of data available to it a trust value attributable to at least a part of the certificate.
2. A digital certificate according to claim 1, in which the trust value is of a credential attribute in the certificate.
3. A digital certificate according to claim 1, in which the trust value is of the certificate.
4. A digital certificate according to any preceding claim, in which the data is trust value data.
5. A digital certificate according to any preceding claim, in which the data includes data obtained externally of the certificate.
6. A digital certificate according to claim 5, in which the obtained data is obtained from a user by the input of data in response to a query generated by the trust function.
7. A digital certificate according to claim 5, in which the obtained data is obtained from a digital data store.
8. A digital certificate according to claim 7, in which the digital data store is a web site.

9. A digital certificate according to any preceding claim, in which the trust function varies the trust value as a function of time.

5

10. A digital certificate according to any preceding claim, in which the trust function is configured to determine the trust value automatically.

- 10 11. A digital certificate according to any preceding claim, in which the trust function is embedded within the certificate as an executable file.

12. A digital certificate according to claim 11, in which  
15 execution of the executable file determines the trust value.

13. A digital certificate according to claim 11 or claim 12, in which the executable file is a platform  
20 portable code, such as Java Script or HTML.

14. A digital certificate according to any preceding claim, in which the certificate had a valid period and the credential function determines the credential  
25 attribute property value during the valid period.

15. A digital certificate according to any preceding claim, in which the plurality of credential attribute properties are from a single credential attribute.

30

16. A digital certificate according to any one of claims 1 to 14, in which the plurality of credential attribute

properties are from a plurality of credential attributes.

- 5 17. A digital certificate according to any preceding claim, in which there is at least one attribute trust value, in which the trust function uses an attribute trust value to determine the trust value.
- 10 18. A digital certificate according to any one of claims 1 to 14, in which there is a plurality of credential attributes and a plurality of attribute trust values, in which the trust function uses a plurality of attribute trust values to determine the trust value.
- 15 19. A digital certificate according to any preceding claim, in which a credential function is provided in the certificate, which credential function is associated with at least one credential attribute property and which determines the value of the  
20 credential attribute property.
- 25 20. A digital certificate according to claim 19, in which the trust function uses the credential attribute property value determined by the credential function.
21. A digital certificate according to claim 20, in which the credential attribute property value determined by the credential function is a trust value.
- 30 22. A digital certificate according to any one of claims 19 to 21, in which the certificate has a valid period and, the trust function determines the trust value during the valid period of the certificate.

23. A digital certificate according to any one of claims  
19 to 22, in which the credential function varies the  
credential attribute property value as a function of  
5 time.
24. A digital certificate according to any one of claims  
19 to 23, in which the credential function is  
configured to determine the credential attribute  
10 property value automatically.
25. A digital certificate according to any one of claims  
19 to 23, in which the credential function is embedded  
within the certificate as an executable file.  
15
26. A digital certificate according to claim 25, in which  
execution of the executable file determines the  
credential attribute property value.
- 20 27. A digital certificate according to claim 25 or claim  
26, in which the executable file is a platform  
portable code, such as Java Script or HTML.
28. A digital certificate according to any one of claims  
25 19 to 27, in which the credential attribute property  
comprises a value operated on by the credential  
function to determine a credential attribute property  
value.
- 30 29. A digital certificate according to any one of claims  
19 to 28, in which the credential function uses data  
obtained from outside the certificate to determine the  
credential attribute property value.



- 5 30. A digital certificate according to claim 29, in which the obtained data is obtained from a user by the input of data in response to a query generated by the credential function.
- 10 31. A digital certificate according to claim 29, in which the obtained data is obtained from a digital data store.
32. A digital certificate according to claim 31, in which the digital data store is a web site.
- 15 33. A digital certificate according to any one of claims 19 to 32, in which a plurality of the credential attribute properties have respective credential functions.
- 20 34. A digital certificate according to claim 33, in which each credential attribute property has a respective credential function.
- 25 35. A method of communication, which method comprises the steps of communicating from a sender to a recipient a digital certificate according to any preceding claim.
- 30 36. A method of communication according to claim 35, in which the recipient inspects the certificate and the trust value is determined by the trust function.
37. A method of communication according to claim 35 or claim 36 when dependent on any one of claims 19 to 34, in which the recipient inspects the certificate and

the credential attribute property value is determined according to the credential function.

5       38. A method of communication according to any one of claims 35 to 37, in which the communication is via a distributed electronic network.

10       39. A digital certificate substantially as described herein, with reference to and as shown in Figures 1 or 3 of the accompanying drawings.

15       40. A method of communication substantially as described herein, with reference to Figures 1 or 2 and 3 of the accompanying drawings.

**ABSTRACT****Improvements In and Relating to Trust For Digital  
Certificates**

5

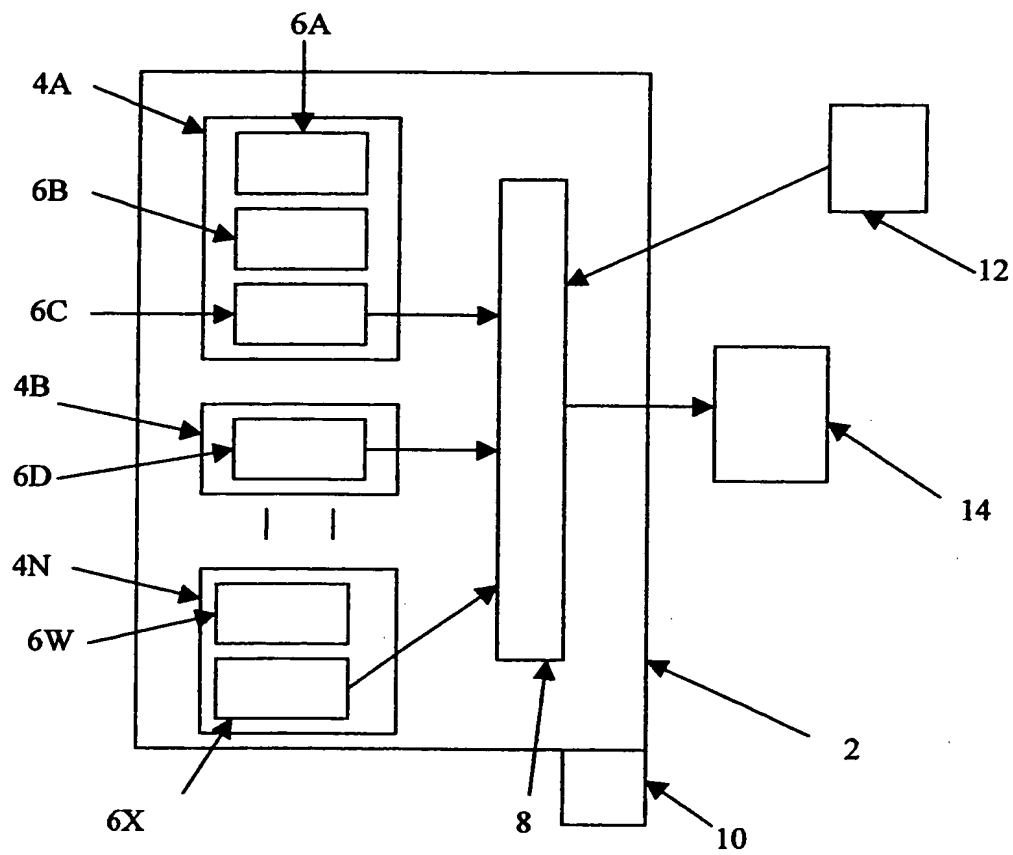
The present invention provides a digital certificate (2, 32) comprising a plurality of credential attribute properties (6, 36), and a trust function (8, 42) which  
10 trust function determines as a function of data (12, 44) available to it a trust value (14, 46) attributable to at least a part of the certificate. A corresponding method of communication is also disclosed.

15

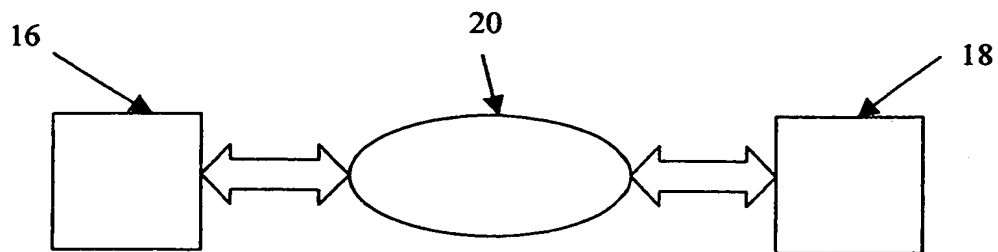
Figure 1

**THIS PAGE BLANK (USPTO)**

**FIGURE 1**

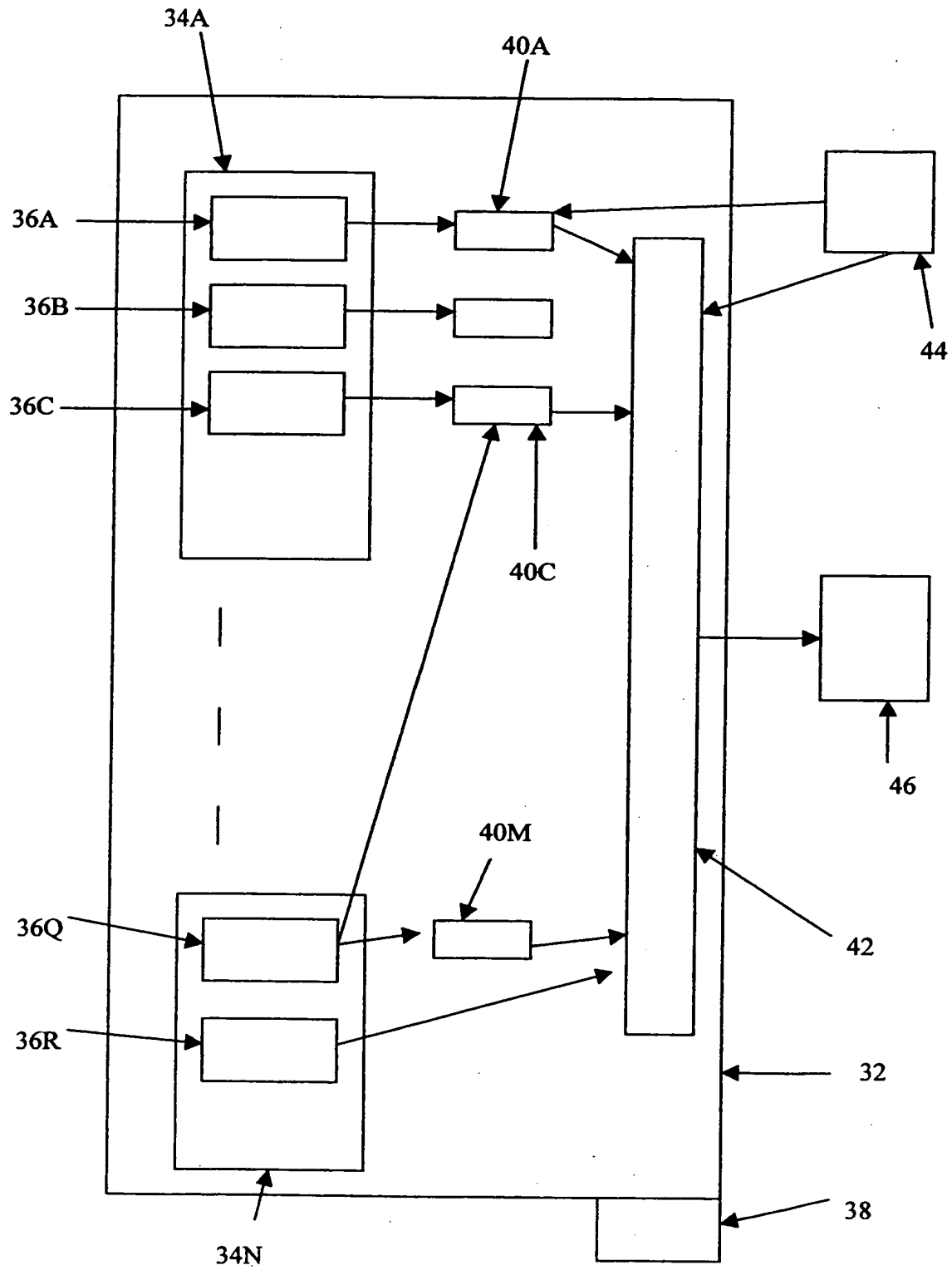


**FIGURE 2**



**THIS PAGE BLANK (USPTO)**

FIGURE 3



**THIS PAGE BLANK (USPTO)**